DOCUMENT RESUME

ED 108 933 SE 019 177

AUTHOR	Rosenthal, Neal H.
TITLE	A Career in Medicine. Revised Edition.
INSTITUTION	B'nai B'rith, Washington, D.C. Vocational Service.
REPORT NO	BBCCS-Pamphlet-1024
PUB DATE	73
NOTE	22p.
AVAILABLE FROM	B'nai B'rith Career and Counseling Services, 1640 Rhode Island Avenue, N. W., Washington, D. C. 20036 (Free)
EDRS PRICE	MF-$0.76 HC-$1.58 PLUS POSTAGE
DESCRIPTORS	*Career Education; Health Occupations Education; *Medical Education; *Medicine; *Occupational Guidance; Pamphlets; Professional Education; *Vocational Counseling

ABSTRACT

This publication, a pamphlet included in the B'nai B'rith Occupational Brief Series, directs attention to the many fields of work that are concerned with our nation's health. This career brief focuses on the physician, the key occupation among many in the field of medicine. A list of the specialties recognized by the American Medical Association is presented. Location of employment and working condition factors are described. The need for licensure, the personal qualifications, the educational requirements and a brief description of premedical training are briefly summarized and presented in this booklet. Medical school educational costs, earnings, career advantages and disadvantages and employment outlook are other topics presented. Opportunities for women physicians are proposed as favorable. Related occupations are listed. A selected bibliography is included. (EB)

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A Career in Medicine

Revised Edition

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Published by B'nai B'rith Career and Counseling Services
Formerly—B'nai B'rith Vocational Service

Under the Editorship of
DR. S. NORMAN FEINGOLD, *National Director*
B'NAI B'RITH CAREER AND COUNSELING SERVICES

BBCCS Pamphlet #1024

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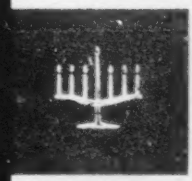

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B'NAI B'RITH CAREER AND COUNSELING SERVICES
1640 Rhode Island Ave., N.W., Washington, D.C. 20036

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LIBRARY OF CONGRESS CATALOG NUMBER 62-22154

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A 35th Anniversary Publication of
B'nai B'rith Career and Counseling Services

A CAREER IN MEDICINE

(Revised Edition)

by NEAL H. ROSENTHAL

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U. S. Department of Labor

MEDICINE ENCOMPASSES MANY FIELDS of work that are concerned with our nation's health. It includes the direct care of persons who are ill, research into causes and cures of disease, and prevention and control of disease. This career brief focuses on the physician, the key occupation among many in the field of medicine.

NATURE OF WORK

PHYSICIANS DIAGNOSE DISEASES, prescribe medicine, perform surgery and engage in many other activities to treat human illness. They also give advice to individuals on personal and family problems and teach people how to stay in good health. About one fifth of all physicians are general practitioners—the "family doctor." They treat all types of medical cases ranging from childhood diseases to accidents. When specialized care is required, however, family doctors refer patients to the proper specialist.

General practitioners usually treat patients during regular office hours and at hospitals. When required, they call upon patients at their home. Family doctors are also available at any hour of the day or night for emergencies.

Many physicians become "specialists" in one particular branch of medicine. In recent years, an increasing number of physicians have chosen to specialize. Some specialize in diseases of a bodily system such as the digestive system or the urinary tract, or in a

Physician examines infant's heart and lungs in a well-baby clinic.
National Institutes of Health, Bethesda, Maryland

specific type of treatment such as surgery or the use of X-rays; others specialize in disorders that affect tissues such as cancer, rheumatism, or arthritis. Among the largest specialties are internal medicine, surgery, obstetrics, gynecology, psychiatry, pediatrics, radiology, opthalmology, and pathology.

The following list describes many of the specialties recognized by the American Medical Association:

Specialty	*Area of Work*
Anesthesiology	Use of anesthetics.
Dermatology	Treatment of skin diseases.
Internal Medicine	Treatment of diseases and organs within the body.
Neurological Surgery	Surgery of the nervous system.
Neurology	Treatment of the nervous system.
Obstetrics and Gynecology	Care during pregnancy and labor, and treatment of diseases peculiar to women.
Ophthalmology	Treatment of eye diseases and conditions.
Orthopedic Surgery	Correction of natural or accidental deformities or fractures.

Otolaryngology	Treatment of the ear, nose, and throat.
Pathology	Diagnosing the changes in body tissues.
Pediatrics	Medical care of children.
Physical Medicine and Rehabilitation	Treatment of diseases by physical and mechanical means, such as massage, electricity, etc.
Plastic Surgery	Surgery to repair deformed or injured parts of the body by transfer of tissue.
Preventive Medicine and Public Health	Prevention of disease for individuals and for the public in general.
Proctology	Treatment of the rectal area of the body.
Psychiatry	Treatment of mental disorders, neuroses, and psychoses.
Radiology	Treatment and diagnosis of disease by means of X-ray and radio-active materials.
Surgery	Surgical operations in general.
Thoracic Surgery	Surgical operations between neck and abdomen, especially lungs.
Urology	Treatment of diseases of the urino-genital organs.

Some physicians conduct medical research on a full-time basis or combine research with patient care. Research physicians may seek to discover the causes of a particular disease or a better way to treat an illness. They often work with specialists in other areas of science, including biochemists, microbiologists, and bacteriologists. Some physicians combine research or private practice with teaching.

Many physicians work for large industrial firms. They seek ways to prevent illness that may be caused by the type of work done by employees and treat accidents or illnesses of employees. Generally, preventive medicine is the focus of the industrial physician's work. Much of industry's headway in preventing illness and reducing accidents is the result of physicians' work. Some physicians are engaged in administrative duties in public health work.

LOCATION OF EMPLOYMENT

APPROXIMATELY 320,000 PHYSICIANS were practicing in the United States in 1972; about two-thirds of whom were engaged in private practice. Interns and residents in hospitals numbered about 52,000. About one in ten held full-time staff positions in hospitals. Many physicians taught in medical schools; some teachers com-

bined research with their instructional duties. Others were employed by industrial firms; Federal, State and local health agencies; non-profit research organizations; and professional societies.

The northeastern section of the country has the greatest concentration of physicians as measured by the ratio of physicians to population, and the southern section the lowest. Five heavily populated states—New York, California, Pennsylvania, Illinois, and Texas—have nearly two-fifths of all the country's physicians. Specialists are more highly concentrated in large cities than general practitioners, who are more evenly distributed geographically.

A tissue culture is studied by this research physician at the Genetics Research Center of Yeshiva University's Albert Einstein College of Medicine.

National Institutes of Health, Bethesda, Maryland

WORKING CONDITIONS

WORKING CONDITIONS FOR A PHYSICIAN depend on such factors as his specialty, the size and type of community in which he practices, availability of hospital facilities, and the economic well-being of his patients.

Doctors' offices vary from small ones with little modern equipment to elaborate well-equipped suites. Physicians may work alone or have several assistants, including nurse, receptionist, and technician. In an increasing number of communities, several doctors maintain a group medical center. Such a center typically contains a common reception room, plus private, well-equipped offices for each physician.

Physicians usually see patients by appointment during regularly scheduled office hours. Most physicians schedule appointments in the afternoon, reserving mornings for hospital visits and house calls. In general, however, physicians prefer that patients visit them at their office. Nevertheless, most physicians work long and irregular hours, despite their attempt to regulate their day. Physicians in private practice may be called at any hour of the day or night in times of emergency; specialists' hours, as a rule, are more regular. Because of his irregular hours, it is not easy for the physician to plan leisure-time activities. Plans often must be changed without notice. Group practice has its advantages in planning leisure activities. One member of the group at a time is designated for emergency duty and the telephone answering service directs calls to that physician. Physicians in teaching or research have regular hours, work under good physical conditions, and often determine their own work load. Teachers and researchers generally have the most modern of equipment.

Physicians tend to work shorter hours as they grow older, sometimes leaving night calls to young associates. Some doctors continue to practice well beyond 70 years of age.

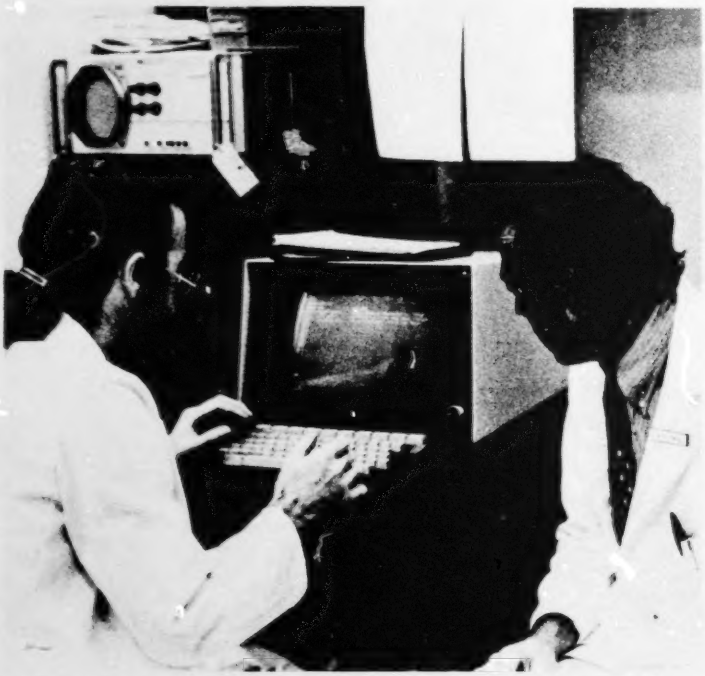
The major hazard faced by physicians is the constant exposure to disease and infection. They must also travel in all types of weather and suffer the dangers of physical or nervous exhaustion from the constant demands of long work hours.

LICENSURE

A LICENSE IS REQUIRED TO PRACTICE MEDICINE in all states, territories, and the District of Columbia. Each state has its own licensing examination. However, an examination offered by the National Board of Medical Examiners is accepted by 48 states, all terri-

tories, and the District of Columbia as a substitute for the state examination.

In all states a candidate for the licensing examination must be a graduate of an approved medical school. He also must have completed a 1-year internship in most states (34 in 1972) and in the District of Columbia. In several states the candidate must pass an examination in the basic sciences to become eligible for the medical licensing examination. It is important, therefore, for prospective physicians to check carefully on the licensing requirements of the state in which they wish to practice. However, it is advisable for a student to complete the most strict requirements so that later in his career, he can move easily from one state to another. Usually a license to practice in another state may be obtained without further examination. However, a physician licensed in one state may be required to take a licensing examination in another state where there is no reciprocity. Some state medical boards may issue a license to practice at their discretion.



Two physicians operate a computer-based patient monitoring system that enables them to establish a meaningful graph of a patient's vital signs.

National Institutes of Health, Bethesda, Maryland

PERSONAL QUALIFICATIONS

THE PROSPECTIVE DOCTOR'S PRIMARY personal qualification for success is a strong interest to practice medicine. If motivated only by considerations of money or social status, an individual is unlikely to be able to make it through the long training program. In addition, the prospective physician should be highly intelligent and have the personal commitment to see him through the long, difficult years of intensive study. Also, he should have the stamina and stability to work strenuously over long periods, often under difficult conditions and at all hours of the day and night. The ability to deal with all types of people whom he meets from day to day, tact, good judgment, and self-confidence are important traits for the physician. A pleasing personality and the ability to maintain the respect and confidence of one's colleagues and associates are also important.

EDUCATIONAL REQUIREMENTS

PREPARING FOR A CAREER IN MEDICINE requires more time, effort, and expense than for most professions. In addition to completing high school, 3 or 4 years of premedical college, and 4 years of medical school, the prospective doctor must usually spend at least one year as an intern. If he wishes to specialize, a physician must spend at least 2, and possibly as many as 5, additional years as a resident in a hospital.

HIGH SCHOOL

HIGH SCHOOL STUDENTS CONSIDERING a career in medicine should take a college preparatory program that includes courses required to meet the admission requirements of most colleges and universities. Although a science background is mandatory, the student should also obtain a sound basic education in high school. Thus, a variety of subjects should be taken including 3 years of laboratory science (chemistry, biology, and physics); 4 years of English; 2-4 years of a modern, foreign, or classical language; 2-3 years of social studies; and 3 years of mathematics (2 of algebra, 1 of plane geometry). Some high school students work part-time, for pay or as a volunteer, during the school year, and work full-time during summer vacations in jobs related to medicine. In a number of B'nai B'rith Career and Counseling Services offices, high school youth considering a career in medicine have the opportunity on numerous occasions to meet and spend time with B'nai B'rith Career and Counseling Services advisors who are successful physicians.

PREMEDICAL TRAINING

THE LENGTH OF PREMEDICAL TRAINING required depends upon the medical school in which the prospective physician wishes to study. Most medical schools require at least 3 years of premedical college training and some require 4 years. The great majority of students who enter medical school, however, complete 4 years of college.

A premedical curriculum should include courses in biology, physics, inorganic and organic chemistry, English, social science, and the humanities. Science courses should include laboratory work in addition to theoretical training.

In general, the courses required for entrance to most medical schools are similar. Students who do not enter a premedical program upon beginning their college study, therefore, find it relatively easy to shift to a biology or chemistry major. This generally allows them to meet the eligibility requirements of most medical schools. However, if a student is thinking of entering a specific medical school, he should familiarize himself with that school's requirements.

MEDICAL SCHOOL

IN 1972, STUDENTS COULD BEGIN THE STUDY of medicine in 107 schools in the United States. Ninety-three were fully accredited schools which offered the doctor of medicine degree to students completing the program. Six schools offered only the first 2 years of a medical school curriculum. Students completing this program could then transfer to regular medical schools for the last 2 years of study. Eight schools enrolled students, but had not yet advanced their educational programs sufficiently to qualify for accreditation.

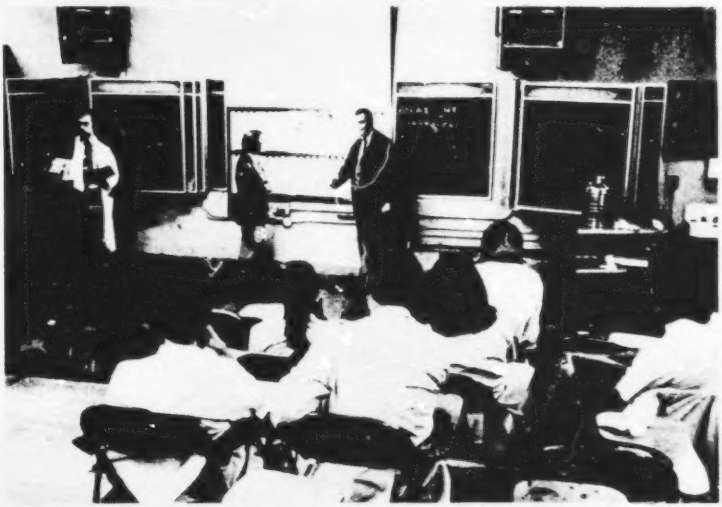
Approximately 12,350 students entered the first year of study in medicine in the 1971-72 school year. Although all medical schools admit women students, only 11 percent were women.

The Medical College Admission test is required or recommended by all U. S. medical schools. Students should take this test in the second or third year of premedical college. It is given twice annually during the spring and fall in certain colleges in each state by the Association of American Medical Colleges. This examination covers verbal and quantitative ability, and knowledge of the social and natural sciences.

Application to medical school should be made a year or more before the student plans to enroll. Because the number of applicants to medical schools exceeds the number that can be accepted,

preference is given to the most highly qualified. It is advisable, therefore, for candidates to send applications to at least 3 to 6 schools to increase their chances for acceptance. In addition to the Medical College Admission test scores, many other factors are taken into account by medical schools in selecting students. These include premedical college record, scholastic standing of the college where premedical studies were taken, the applicant's character, personality, leadership qualifications, and participation in extracurricular activities. Personal interviews and letters of recommendation can also play an important role. Furthermore, many state supported medical schools give preference to residents of their particular state and sometimes nearby states.

Applicants from minority groups have been faring much better in recent years as religion and race are not as important to colleges as they once were. Today, with few exceptions, non-denominational medical schools select applicants on the basis of merit and legal state resident requirements. A B'nai B'rith Career and Counseling Services survey, carried out in cooperation with B'nai B'rith Women, of 6,600 affiliated Jewish high school youth in 40 states and the District of Columbia, showed medicine in second place as a career choice. The results of this study were published in a book entitled *The College and Career Plans of Jewish High School Youth.*



A prospective physician spends many hours in the classroom. Here, x-rays of post-operative fractures are being reviewed.

National Institutes of Health, Bethesda, Maryland

An eight year follow-up study of the educational and career plans of these young adults indicated that 43 per cent of the male respondents, and 3.5 percent of the female respondents, were in professional schools at the time of the survey. The medical profession remains second among career choices for young Jewish men. The results of this survey are published in a book entitled *Eight Years Later: Education and Careers of Young Jewish Adults.*

Jewish people have shown strong interest in medicine as a career for many centuries. For some prospective physicians of the Jewish faith, however, it is difficult or impossible to gain acceptance to a specific medical school because of geographical quotas established by law or policy. For example, publicly controlled medical schools must by law give preference to applicants from their states. Such laws limit enrollment of applicants from such areas as New York City where over half of the nation's Jewish people live.

During the medical student's first two years of study, he takes courses in anatomy, physiology, pharmacology, and microbiology, as well as other subjects in the basic medical sciences. Instruction during these years is provided through lectures, seminars, and laboratory work in addition to textbook study. In the last two years of medical school, a large portion of the student's time is spent in a hospital or clinic. He becomes part of a medical team that is headed by a physician who instructs him. While working under close supervision, he learns such techniques as how to take a patient's medical history, make a physical examination, work in a laboratory, and make a diagnosis. The medical student also moves from one specialty to another so that he obtains an understanding of all aspects of medicine. He is assigned to duties in pediatrics, internal medicine, obstetrics, gynecology, and surgery as well as in other fields.

In order to obtain professional recognition, graduates of medical schools must complete an internship. Therefore, regardless of the licensing requirements of the state in which he wishes to practice, it is highly desirable for the physician to serve as an intern.

Newly trained physicians are increasingly taking training in addition to the 1-year hospital internship. Those who plan to be general practitioners often spend an additional year or two as a hospital intern or resident.

It is usually necessary for physicians wishing to specialize to spend 2 to 4 years, depending on the specialty, as a resident in a hospital. This must be followed by 2 years or more of practice in

The careful drawing of amniotic fluid (amniocentesis) is conducted by this physician. Cells shed by the fetus are then studied to determine the condition and sex of the unborn child.

National Institutes of Health, Bethesda, Maryland

the specialty before he can qualify to take a specialty board examination to become recognized as a specialist.

Some physicians interested in teaching and research take graduate training leading to a master's or Ph.D. degree in a field such as biochemistry or microbiology.

STUDENT AIDS

STUDENTS WITH ABILITY who wish to become physicians should not drop their career aspirations because of a lack of funds. Although the study of medicine is most costly in terms of time and money, student aid resources are increasing, particularly in the area of educational loans. Many state and county medical societies have scholarship and educational loan programs, which are usually limited to students who are residents of a particular state. A major student reference source providing information about student aids is SCHOLARSHIPS, FELLOWSHIPS AND LOANS, authored by Dr. S. Norman Feingold and published by the Bellman Publishing Company, Arlington, Mass. 02174. This company also issues the SCHOLARSHIPS, FELLOWSHIPS AND LOANS NEWS SERVICE, a quarterly newsletter devoted to reporting new developments in student aid funds as they are established.

The selected bibliography at the end of this career brief lists these publications as well as many others, including Medical Scholarship and Loan Fund Programs sponsored or administered by medical societies.

EARNINGS

AVERAGE EARNINGS OF ESTABLISHED PHYSICIANS are estimated to be higher than earnings for workers in any other profession. Although information on earnings of self-employed physicians is very limited, indications are that the net income generally fell in the $35,000 to $45,000 range in 1972. Some well known specialists had much higher incomes.

In general, earnings are not high in the first years of practice. While establishing themselves, physicians probably earn little more than the minimum needed to pay expenses for maintaining their offices. Furthermore, a sizeable investment must be made in equipment by those who establish their own practice.

Earnings are also low during the first years after medical school while young physicians are interns and residents. In 1972, the average annual salary of interns in hospitals affiliated with medical schools was about $8,800 a year and about $10,100 in other hospitals. Residents' salaries averaged about $7,600 annually in hospitals affiliated with medical schools, and $9,400 in nonaffiliated hospitals. However, many hospitals also provided full or partial room and board, as well as other maintenance allowances to interns and residents.

In late 1972, Federal Government agencies offered starting salaries of $13,300 to physicians who had completed their internship and $15,900 if they had completed a one-year residency or demonstrated superior achievement during their internship.

Earnings of physicians in private practice vary greatly depending on such factors as the geographical location of their practices; patient characteristics, such as income level, age, and sex; and the physician's skill, personality, experience, and professional reputation. Physicians in private practice generally earn more than those in salaried positions, and specialists usually earn more than general practitioners.

ADVANTAGES AND DISADVANTAGES

ONE OF THE PRIMARY ADVANTAGES of a career in medicine is the personal satisfaction of performing one of the most vital services to society—prolonging human lives and contributing to the happiness and security of the world. The doctor's prestige is among the highest accorded any profession. He may transfer to nearly any location he desires because his skills are in great demand. Furthermore, he may choose his own place of work—his own home or an office away from home.

A primary disadvantage is the costly process of obtaining a medical education in terms of the time and money required to earn the medical degree. This disadvantage is offset somewhat by the availability of student aid, including many educational loans through universities and banks that may be repaid after the physician begins his practice. Other disadvantages include long and irregular hours, especially for general practitioners. Also, in the collection of fees, he must be among the most patient of creditors, in accordance with the ethics of the medical profession. However, since the earnings of physicians are among the highest of all professions, this disadvantage is greatly reduced.

EMPLOYMENT OUTLOOK

OPPORTUNITIES FOR A SUCCESSFUL CAREER as a physician undoubtedly will be excellent through the 1970's and beyond. Demand of the services of physicians should continue to increase very rapidly. However, the supply of physicians forthcoming from U. S. medical schools and from abroad will only be sufficient to result in a small increase in the ratio of physicians to population. Through the 1970's an average of about 9,500 will be required

annually just to replace physicians who die, retire, or stop practicing for other reasons. Despite expected increases in the number of medical school graduates, therefore, the majority will be needed just to replace those physicians who stop working for one reason or another.

The anticipated increase in demand for the services of physicians is based on several factors. Most important is the continuing growth expected in the population. Although the birth rate decreased during the 1960's, the United States population is still expected to increase continually. Because people are living longer, there will be a much greater number of older people, the age group which requires the most medical care. Standards for health care are continuing to increase as the average education level of the population rises and people become more enlightened to the benefits of good health care. Furthermore, television, newspapers, and other public media are increasingly making the public more aware of the necessity for adequate medical care.

This physician is reviewing a patient's pre- and post-operative x-rays.
National Institutes of Health, Bethesda, Maryland

Ease of payment for health care is another major factor underlying the growth demand for physicians' services. Coverage of persons under health insurance plans should continue to increase in the years ahead, as more persons become aware of insurance benefits. Furthermore, a greater number of employers have health insurance plans and older persons are now covered by medicare. The Federal Government has also provided other programs which provide health care free to those who cannot afford to pay. Favorable opportunities for employment of physicians also are expected in the field of public health, rehabilitation, industrial medicine, and mental health.

Innovations in the health care field that will allow individual physicians to care for more patients, however, should offset, to some extent, the rise in demand for their services. For example, assistants to physicians now take X-rays, work in the laboratory, and perform a variety of other duties formerly done by physicians. Also, illnesses are being cut short by new drugs and new methods of care. An increasing number of physicians also are going into group practice which enables them to use their time more efficiently. In addition, the trend is toward treating patients in hospitals and offices, rather than in the patient's home, which saves the physician tremendous amounts of time that he used to spend in traveling.

Opportunities for employment of physicians in research also are expected to increase during the 1970's. Indications are that Federal expenditures for medical research will rise sizeably throughout the 1970's, as we continue to seek causes and cures for cancer, heart disease, and other illnesses. The outlook is also favorable for those wishing to teach. Medical schools are growing in size, in part as a result of Federal Government support and, therefore, an increasing number of teachers will be needed in the years ahead. Many medical schools will continue to offer positions for those who wish to combine research with teaching.

WOMEN

OPPORTUNITIES FOR WOMEN PHYSICIANS will also be favorable. There will be especially good opportunities for women physicians in obstetrics and gynecology, psychiatry, internal medicine and anesthesiology.

At present, women make up only 7% of the physicians in the United States. Although medical education is extremely expensive, some student aid is specifically available to women; for example, through the American Medical Women's Association.

An interesting fact is that many women doctors marry doctors. Many do manage to combine family responsibilities with professional life. Recently, there have been many more attempts to make residency requirements more flexible in order to enable married women with children to resume their medical studies and practice. The few programs now in existence have proven quite successful.

COUNSELING

MANY YOUNG PEOPLE FIND EDUCATIONAL AND VOCATIONAL counseling helpful in choosing an appropriate and satisfying career. Those interested in assessing their assets and limitations in relation to a career as a physician may wish to use the counseling services in their school, or in a number of agencies which provide professional counseling services. Young people also can get in touch with one of the B'nai B'rith Career and Counseling Services field offices, or any counseling agency approved by the International Association of Counseling Services, Inc., that are located throughout the country. A list of these agencies is published in their DIRECTORY OF COUNSELING SERVICES. Copies of this book may be found in many public and private libraries.

RELATED OCCUPATIONS

PREMEDICAL COLLEGE TRAINING CAN SERVE AS A FOUNDATION for many other occupations. Many students who are not accepted in a medical school, or who for some other reason do not receive the medical degree, may find a career in any of the following fields:

BACTERIOLOGY
BIOCHEMISTRY
BIOPHYSICS
MEDICAL SOCIAL WORK
PARASITOLOGY
PHYSIOLOGICAL CHEMISTRY
PSYCHIATRIC SOCIAL WORK
PUBLIC HEALTH
REHABILITATION SERVICE

Some premedical students take training for entrance to other occupations that are concerned with the care of patients. Among such fields are the following:

DENTISTRY
OPTOMETRY
PHARMACY
VETERINARY MEDICINE
OSTEOPATHY

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